

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An apparatus for the interstitial coagulation of tissue, comprising:
a first three-dimensional treatment electrode that can be expanded to various states of expansion during use and is adapted to conduct an HF coagulation current into said tissue, the treatment electrode being formed such that by one of continuous and stepwise expansion of said electrode it can be kept in constant electrical contact with the tissue during coagulation, the treatment electrode comprising one of an elastically stretchable and an unfoldable surface element that defines a separate interior space, the interior space being enclosed by an auxiliary body that hydraulically separates the enclosed interior space from the surface element, wherein an internal pressure can be applied to the enclosed interior space to expand said surface element and thereby said treatment electrode; and

a control device for controlling the state of expansion of the treatment electrode dependent on the coagulation current, wherein the control device is adapted to expand the treatment electrode in response to a decrease of strength of the coagulation current

a liquid supply through which an electrically conductive liquid can be delivered to the surface element;

wherein the surface element is configured to receive the electrically conductive liquid from the liquid supply.

2. (Canceled)

3. (Currently Amended) The apparatus according to claim [[2]] 1, wherein said control device is adapted to enable an adjustment of a current density of said coagulation current between said treatment electrode and said tissue.

4. (Previously Presented) The apparatus according to claim 3, wherein said control device permits the current density to be adjusted independently of the degree of expansion.

5. (Previously Presented) The apparatus according to claim 1, wherein measurement devices are provided for detecting the state of expansion of said three-dimensional treatment electrode.

6. (Previously Presented) The apparatus according to claim 1, further including a current supply device adapted to deliver said HF coagulation current to said treatment electrode in such a way that said HF treatment current conducted to the liquid that is passing through the treatment electrode.

7. (Canceled)

8. (Previously Presented) The apparatus according to claim 6, wherein said surface element is in the form of one of a ring and a sphere.

9. (Previously Presented) The apparatus according to claim 6, wherein said treatment electrode is constructed in the form of a balloon catheter.

10. (Previously Presented) The apparatus according to claim 6, wherein said surface element is adapted to be filled with said electrically conductive liquid.

11. (Previously Presented) The apparatus according to claim 6, wherein said electrically conductive liquid comprises one of polyvinyl pyrrolidone (PVP), a surfactant and a similar means of changing the viscosity of said electrically conductive liquid.

12. (Previously Presented) The apparatus according to claim 6, wherein said treatment electrode is made of a thermally stable material; the form of one of a film, a felt and a woven fabric.

13. (Previously Presented) The apparatus according to claim 6, wherein said surface element is constructed in several layers such that in an inner layer, electrically conductive liquid can

be directed towards an outer surface of the element, and in an outer layer, electrically conductive liquid can be directed perpendicular to the outer surface of the element.

14. (Previously Presented) The apparatus according to claim 6, wherein a suction device is provided to suck away liquid.

15. (Previously Presented) The apparatus according to claim 1, wherein said electrode is adapted to be supplied with a cutting current.

16. (Previously Presented) The apparatus as claimed in claim 12, wherein said thermally stable material is comprised of tetrafluoroethylene.

17. (Previously Presented) The apparatus as claimed in claim 13, wherein a partition layer with a greater resistance to liquid flow than said inner layer is disposed between said inner layer and said outer layer.

18. (Previously Presented) The apparatus according to claim 1, further including a second three-dimensional treatment electrode that can be expanded to various states of expansion during use and is adapted to conduct an HF coagulation current into said tissue.

19. (Previously Presented) The apparatus according to claim 18, wherein interior spaces of said first and second treatment electrodes can be placed under pressure independently and expanded to different degrees.

20. (Previously Presented) The apparatus of claim 18, wherein said first and second treatment electrodes are arranged co-axially along a central axis of said apparatus.

21. (New) The apparatus of claim 1, wherein the treatment electrode comprises one of an elastically stretchable and an unfoldable surface element that defines a separate interior space, the

interior space being enclosed by an auxiliary body that hydraulically separates the enclosed interior space from the surface element, wherein an internal pressure can be applied to the enclosed interior space to expand said surface element and thereby said treatment electrode.

22. (New) The apparatus of claim 21, further comprising a liquid-supply through which an electrically conductive liquid can be delivered to the surface element, wherein the surface element is configured to receive the electrically conductive liquid from the liquid-supply.